Errata

Series in Quantitative Finance – Vol. 1

An Introduction to Computational Finance

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Last Modified by Ömür Uğur[1] on March 17, 2009

http://www.icpress.co.uk/economics/p556.html

http://www.metu.edu.tr/~ougur

Page 27, Equation 1.26 change minimise to maximise

Page 49, line 7 and caption of Fig. 2.5 change (t_i, S_{ji}) to (S_{ji}, t_i)

Page 52, line 6 change $P(t_5, S_{j,5})$ to $P(S_{j,5}, t_5)$

Page 58, line 4 change (t_i, S_{ji}) to (S_{ji}, t_i)

Page 58, Equations 2.27 and 2.28 change M to i

Page 66, line 12 change the first appearance of that to than

Page 73, line 6 from bottom change $e^{\xi^2/2}$ to $e^{-\xi^2/2}$

Page 82, line 1 from bottom change > 0 to $x > 0$

Page 98, line 10 change "*Ornstein-Uhlenbeck* X_t" to "*Ornstein-Uhlenbeck* process X_t"

Page 98, line 19 change

$$A(X_t, t) = \gamma X_t + e^{\gamma t}(-\gamma X_t) = 0$$

to

$$A(X_t, t) = \gamma X_t e^{\gamma t} + e^{\gamma t}(-\gamma X_t) = 0$$

Page 106, line 3 change

$$\left[X_t^{(1)}, \quad X_t^{(2)}, \quad \ldots, \quad X_t^{(n)}\right]^T \in \mathbb{R}^n$$

to

$$X_t = \left[X_t^{(1)}, \quad X_t^{(2)}, \quad \ldots, \quad X_t^{(n)}\right]^T \in \mathbb{R}^n$$

Page 121, lines 14 and 15 change

$$\begin{aligned} u_C(x,\tau) &= \frac{1}{\sqrt{4\pi\tau}} \int_{-\infty}^{\infty} e^{-\frac{(x-\xi)^2}{4\tau}} \max\left\{e^{\beta x} - e^{\gamma x},\ 0\right\} d\xi \\ &= \frac{1}{\sqrt{4\pi\tau}} \int_{0}^{\infty} e^{-\frac{(x-\xi)^2}{4\tau}} \left(e^{\beta x} - e^{\gamma x}\right) d\xi \end{aligned}$$

to

$$\begin{aligned} u_C(x,\tau) &= \frac{1}{\sqrt{4\pi\tau}} \int_{-\infty}^{\infty} e^{-\frac{(x-\xi)^2}{4\tau}} \max\left\{e^{\beta \xi} - e^{\gamma \xi},\ 0\right\} d\xi \\ &= \frac{1}{\sqrt{4\pi\tau}} \int_{0}^{\infty} e^{-\frac{(x-\xi)^2}{4\tau}} \left(e^{\beta \xi} - e^{\gamma \xi}\right) d\xi \end{aligned}$$

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[1] The author is extremely sorry to have made these mistakes. Please feel free to report any further errors to ougur@metu.edu.tr. Your suggestions, comments and analysis will be very much appreciated. This document as well as any revision will also be available on http://www.metu.edu.tr/~ougur.

Page 121, lines 6 and 5 from bottom change

$$\begin{aligned} I_\alpha &= \frac{1}{\sqrt{4\pi\tau}} \int_0^\infty e^{-\frac{[(x+2\tau\alpha)-\xi]^2}{4\tau}+\alpha\xi}\, e^{\alpha x+\alpha^2\tau}\, d\xi \\ &= e^{\alpha x+\alpha^2\tau} \int_{-\infty}^{\frac{x+2\tau\alpha}{\sqrt{2\pi}}} \frac{1}{\sqrt{2\pi}} e^{-\eta^2/2}\, d\eta \end{aligned}$$

to

$$\begin{aligned} I_\alpha &= \frac{1}{\sqrt{4\pi\tau}} \int_0^\infty e^{-\frac{[(x+2\tau\alpha)-\xi]^2}{4\tau}}\, e^{\alpha x+\alpha^2\tau}\, d\xi \\ &= e^{\alpha x+\alpha^2\tau} \int_{-\infty}^{\frac{x+2\tau\alpha}{\sqrt{2\tau}}} \frac{1}{\sqrt{2\pi}} e^{-\eta^2/2}\, d\eta \end{aligned}$$

Page 121, line 4 from bottom change $\eta = \frac{x+2\tau\alpha-\xi}{\sqrt{2\pi}}$ to $\eta = \frac{x+2\tau\alpha-\xi}{\sqrt{2\tau}}$

Page 122, Equations 4.28–4.31 change $\sqrt{2\pi}$ in the denominators of fractions to $\sqrt{2\tau}$

Page 143, Equation 5.2 change N_{i+1} to N_i

Page 143, line 5 change $U_{-\ell}, U_{-\ell+1}, \ldots, U_1, U_0$ to $U_{-\ell}, U_{-\ell+1}, \ldots, U_{-1}$

Page 147, line 8 from bottom change Example 5.1 to Exercise 5.1

Page 150, line 8 from bottom change four to five

Page 156, line 3 from bottom change $(\mathbb{C}\mathrm{ov}\,[X])_{ij}$ to $\mathbb{C}\mathrm{ov}\,[X_i, X_j]$

Page 172, line 11 change

$$B(t) = (b_{ij}(t))_{i,j=1}^n = \begin{bmatrix} b_{11}(t) & b_{12}(t) & \cdots & b_{1n}(t) \\ b_{21}(t) & b_{22}(t) & \cdots & b_{2n}(t) \\ \vdots & \vdots & \ddots & \vdots \\ b_{i1}(t) & b_{i2}(t) & \cdots & b_{in}(t) \end{bmatrix}$$

to

$$B(t) = (b_{ij}(t))_{i,j=1}^n = \begin{bmatrix} b_{11}(t) & b_{12}(t) & \cdots & b_{1n}(t) \\ b_{21}(t) & b_{22}(t) & \cdots & b_{2n}(t) \\ \vdots & \vdots & \ddots & \vdots \\ b_{n1}(t) & b_{n2}(t) & \cdots & b_{nn}(t) \end{bmatrix}$$

Page 180, line 6 of Algorithm 5.10 change $\bar{S}_j$ to $\hat{S}_j$

Page 186, line 7 and 9 change n to N

Page 187, Equation 5.42 change

$$\hat{d}_2 = = d_1 - \hat{\sigma}\sqrt{T} = \frac{\log(S_0/K) + \left(\hat{\mu} - \frac{1}{2}\hat{\sigma}^2\right) T}{\hat{\sigma}\sqrt{T}}$$

to

$$\hat{d}_2 = \hat{d}_1 - \hat{\sigma}\sqrt{T} = \frac{\log(S_0/K) + \left(\hat{\mu} - \frac{1}{2}\hat{\sigma}^2\right) T}{\hat{\sigma}\sqrt{T}}$$

Page 230, Equation 6.42 change the two x_{max} to x_{min}

Page 254, line 10 of Algorithm 6.2 change n to $N-1$

Page 283, line 9 change $>$ to $\leq$